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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,309	03/12/2004	Toshihiko Watanabe	112857-467	8209

7590 07/21/2005  
William E. Vaughan  
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Chicago, IL 60609

EXAMINER
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LOUIE, WAI SING

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 07/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/799,309

Applicant(s)

WATANABE ET AL.

Examiner

Wai-Sing Louie

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 15-19, 26-34 and 36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14, 20-25 and 35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Applicant's election without traverse of Group I, claims 1-14, 20-25, and 35, in the reply filed on 5/16/05, is acknowledged. It is suggested that non-elected claims be canceled in the response to this Office Action.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2 and 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Sato et al. (US 6,855,958).

With regard to claims 1 and 9, Sato et al. disclose a wavelength conversion element (col. 4, line 48 to col. 10, line 47 and fig. 1a) comprising:

- A light-emitting device main body B having a light output surface and transferred (col. 4, lines 58-67);
- A transparent electrode C formed in a size larger than a size of the light output surface so as to cover the light output surface and connected directly to a whole

area of the light output surface (col. 5, lines 16-19; col. 6, lines 27-34; and fig. 1a).

With regard to claim 2, Sato et al. disclose the transparent electrode C provides connection between a wiring D for supplying electrical power to the light-emitting device main body B (fig. 1a).

With regard to claim 10, in addition to the limitations disclosed in claim 1, Sato et al. also disclose:

- A plurality of light-emitting device main bodies each having a light output surface (col. 7, lines 8-11).

With regard to claim 11, the transparent electrode is formed collectively on the light surfaces of the plurality of light-emitting device main bodies (col. 7, lines 8-11 and fig. 1a).

Claims 3-5 and 20-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Okazaki et al. (US 6,495,862).

With regard to claim 3, Okazaki et al. disclose a nitride semiconductor light-emitting device (col. 4, line 1 to col. 14, line 25 and fig. 1) comprising:

- A light-emitting device main body having a light output surface (col. 4, lines 1-21 and fig. 1);
- A transparent electrode 13 formed in a size larger than a size of the light output surface so as to cover the light output surface (fig. 3d);
- The light-emitting device main body is provided in the form of a chip (col. 2, line 4) that includes a plurality of semiconductor layers (col. 4, lines 4-10 and fig. 1);

- The transparent electrode 13 is connected directly to a whole area of the light output surface and connected to one of the side surface of the semiconductor layer 4 (fig. 1).

With regard to claim 4, Okazaki et al. disclose the side surface of the semiconductor layer 4 is a contact layer (col. 5, lines 3-5).

With regard to claim 5, Okazaki et al. disclose the refractive index of the transparent electrode 13 is lower than the refractive index of the semiconductor layer 4 including the light output surface and is higher than the refractive index of a resin layer 20 provided on the upper side of the transparent electrode 13 (col. 9, lines 21-23 and col. 10, lines 38-42).

With regard to claims 20-21, in addition to the limitations disclosed in claim 3 above, Okazaki et al. also disclose:

- A contact metal 13a formed on the light output surface 4 (col. 7, line 1 and fig. 3d);
- A wiring layer 6 formed outside the region of the light output surface (fig. 3d);
- A transparent electrode 13b so formed as to cover the contact metal 13a and the wiring layer 6 (fig. 3d).

With regard to claim 22, Okazaki et al. disclose the contact metal is Pt, which is a noble metal (col. 7, line 4).

With regard to claim 23, Okazaki et al. disclose the wiring is Au, which is a noble metal (col. 7, line 9).

With regard to claim 24, Okazaki et al. disclose a protective resin layer 20 so formed as to cover the transparent electrode 13 (fig. 9).

Claims 14 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Konuma (US 6,905,907).

With regard to claim 14, Konuma discloses an image display device col. 7, line 43 to col. 28, line 67 and fig. 8-9) comprising:

- An image display surface (fig. 9a) formed by arranging a plurality of light-emitting device 659 on an apparatus substrate 600, each of the light-emitting devices 659 comprising a light-emitting device main body 657 having a light output surface and transferred, and a transparent electrode 658 formed in a size larger than a size of the light output surface so as to cover the output surface and connected directly to whole area of the light output surface (col. 21, lines 11-21 and fig. 8b).

With regard to claim 35, in addition to the limitations disclosed in claim 14 above, Konuma also discloses:

- A contact metal (same as barrier layer 318) formed on the light output surface 1226 (col. 26, lines 45-53);
- A wiring layer (see layout drawing fig. 9a, wiring is the same as line 908) formed outside of the regions of the light output surface.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-8 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki et al. (US 6,495,862) in view of Yashiki (US 5,454,716).

With regard to claim 6, Okazaki et al. do not disclose coating the light output surface with a conductive paste containing conductive particles dispersed in a light transmitting resin forms the transparent electrode. However, Yashiki discloses forming a conductive layer by coating the substrate with a layer of heat-cured resin embedded with conductive material such as metal particles (Yashiki col. 6, lines 32-36). Yashiki teaches the heat-cured conductive resin layer is stable and improves adhesion property to the device (Yashiki col. 6, lines 40-56). Therefore, it would have been obvious to one of ordinary skill in the art to modify Okazaki's device with the teaching of Yashiki to provide a coating on the light output surface with a conductive layer containing conductive particles dispersed in a light transmitting resin in order produce a stable layer adhering to the light output surface.

With regard to claims 7 and 25, Okazaki et al. modified by Yashiki disclose the conductive particles scatter light emitted from the light output surface and diffuse the light from the transparent electrode (conductive layer) to an exterior of the device (Yashiki col. 6, lines 57-60).

With regard to claim 8, Okazaki et al. modified by Yashiki disclose the conductive particles include ITO (col. 6, line 35 and col. 19 and line 17).

Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (US 6,855,958) in view of Yashiki (US 5,454,716).

With regard to claim 12, Sato et al. not disclose coating the light output surface with a conductive paste containing conductive particles dispersed in a light transmitting resin forms the transparent electrode. However, Yashiki discloses forming a conductive layer by coating the substrate with a layer of heat-cured resin embedded with conductive material such as metal particles (Yashiki col. 6, lines 32-36). Yashiki teaches the heat-cured conductive resin layer is stable and improves adhesion property to the device (Yashiki col. 6, lines 40-56). Therefore, it would have been obvious to one of ordinary skill in the art to modify Sato's device with the teaching of Yashiki to provide a coating on the light output surface with a conductive layer containing conductive particles dispersed in a light transmitting resin in order produce a stable layer adhering to the light output surface.

With regard to claim 13, Sato et al. modified by Yashiki disclose the conductive particles scatter light emitted from the light output surface and diffuse the light from the transparent electrode (conductive layer) to an exterior of the device (Yashiki col. 6, lines 57-60).



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (571) 272-1709. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wsl  
July 19, 2005.

